

We claim:

1. A substantially pure or isolated oligodeoxynucleotide of at least about 8 nucleotides in length, wherein:
 - the oligodeoxynucleotide forms a G-tetrad;
 - 5 the oligodeoxynucleotide has a CD value of greater than about 2.9;
 - the number of guanosines is at least two; and
 - wherein the oligodeoxynucleotide suppresses an immune response.
- 10 2. The oligodeoxynucleotide of claim 1, wherein the oligodeoxynucleotide has a CD value of greater than about 3.0.
3. The oligodeoxynucleotide of claim 1, wherein the oligodeoxynucleotide has a CD value of greater than about 3.2.
- 15 4. The oligodeoxynucleotide of claim 1, wherein the oligodeoxynucleotide is from about 8 to about 100 nucleotides in length.
5. The oligodeoxynucleotide of claim 1, wherein the oligodeoxynucleotide is from about 10 to about 30 nucleotides in length.
- 20 6. The oligodeoxynucleotide of claim 1, wherein the oligodeoxynucleotide comprises multiple guanosine-rich sequences.
7. The oligodeoxynucleotide of claim 6, wherein the oligodeoxynucleotide
25 comprises from about two to about 20 guanosine-rich sequences.
8. The oligodeoxynucleotide of claim 6, wherein the oligodeoxynucleotide comprises from about two to about four guanosine-rich sequences.
- 30 9. The oligodeoxynucleotide of claim 1, wherein the oligodeoxynucleotide comprises at least one TTAGGG motif.

10. The oligodeoxynucleotide of claim 9, wherein the oligodeoxynucleotide comprises multiple TTAGGG motifs.

11. The oligodeoxynucleotide of claim 9, wherein the oligodeoxynucleotide
5 comprises from about two to about 20 TTAGGG motifs.

12. The oligodeoxynucleotide of claim 9, wherein the oligodeoxynucleotide comprises from about two to about four TTAGGG motifs.

10 13. The oligodeoxynucleotide of claim 9, wherein the oligodeoxynucleotide further comprises a CpG motif, and wherein at least one TTAGGG motif is 5' to the CpG motif.

14. The oligodeoxynucleotide of claim 9, wherein the oligodeoxynucleotide
15 further comprises a CpG motif, wherein the TTAGGG motif is 3' to the CpG motif, and wherein the TTAGGG motif is separated from the CpG motif by at least ten nucleotides.

15. The oligodeoxynucleotide of claim 1, wherein the oligodeoxynucleotide
20 comprises a sequence selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9, SEQ ID NO: 10, SEQ ID NO: 11, SEQ ID NO: 12, SEQ ID NO: 13, SEQ ID NO: 14, SEQ ID NO: 15, SEQ ID NO: 16, SEQ ID NO: 17, SEQ ID NO: 18, SEQ ID NO: 19, SEQ ID NO: 20, SEQ ID NO: 21, SEQ
25 ID NO: 22, SEQ ID NO: 23, SEQ ID NO: 24, and SEQ ID NO: 25.

16. The oligodeoxynucleotide of claim 1, wherein the oligodeoxynucleotide is modified to prevent degradation.

17. The oligodeoxynucleotide of claim 1, wherein the oligodeoxynucleotide has a phosphate backbone modification.

18. The oligodeoxynucleotide of claim 17, wherein the phosphate backbone modification is a phosphorothioate backbone modification.

19. The oligodeoxynucleotide of claim 1, wherein the oligodeoxynucleotide suppresses an immune response induced by a
5 immunostimulatory CpG oligodeoxynucleotide.

20. An oligodeoxynucleotide delivery complex comprising the oligodeoxynucleotide of claim 1 and a targeting moiety.

21. The oligodeoxynucleotide delivery complex of claim 20, wherein the targeting moiety is selected from the group consisting of a cholesterol, a virosome, a
10 liposome, a lipid, and a target cell specific binding agent.

22. The oligodeoxynucleotide of delivery complex of claim 20, wherein the oligodeoxynucleotide and the targeting moiety are covalently linked.

23. A pharmacological composition comprising the oligodeoxynucleotide of claim 1 and a pharmacologically acceptable carrier.

15 24. A method of treating or preventing inflammatory arthropathies in a subject comprising administering a therapeutically effective amount of the oligodeoxynucleotide of claim 1 to a subject having or at risk of developing inflammatory arthropathies, thereby treating or preventing the inflammatory arthropathies.

20 25. The method of claim 24, wherein the oligodeoxynucleotide is administered topically, parenterally, orally, intravenously, intra-muscularly, subcutaneously, or intra-articularly.

26. The method of claim 24, wherein the oligodeoxynucleotide has a CD
25 value of greater than about 3.0.

27. The method of claim 24, wherein the oligodeoxynucleotide has a CD value of greater than about 3.2.

28. The method of claim 24, wherein the oligodeoxynucleotide is from
5 about 8 to about 100 nucleotides in length.

29. The method of claim 24, wherein the oligodeoxynucleotide is from about 10 to about 30 nucleotides in length.

10 30. The method of claim 24, wherein the oligodeoxynucleotide comprises multiple guanosine-rich sequences.

31. The method of claim 24, wherein the oligodeoxynucleotide comprises from about two to about 20 guanosine-rich sequences.
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32. The method of claim 24, wherein the oligodeoxynucleotide comprises from about two to about four guanosine-rich sequences.

33. The method of claim 24, wherein the oligodeoxynucleotide comprises at
20 least one TTAGGG motif.

34. The method of claim 24, wherein the oligodeoxynucleotide comprises multiple TTAGGG motifs.

25 35. The method of claim 24, wherein the oligodeoxynucleotide comprises from about two to about 20 TTAGGG motifs.

36. The method of claim 24, wherein the oligodeoxynucleotide comprises from about two to about four TTAGGG motifs.

37. The oligodeoxynucleotide of claim 24, wherein the oligodeoxynucleotide further comprises a CpG motif, and wherein at least one TTAGGG motif is 5' to the CpG motif.

5 38. The oligodeoxynucleotide of claim 24, wherein the oligodeoxynucleotide further comprises a CpG motif, wherein the TTAGGG motif is 3' to the CpG motif, and wherein the TTAGGG motif is separated from the CpG motif by at least ten nucleotides.

10 39. The method of claim 24, wherein the oligodeoxynucleotide comprises a sequence selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, SEQ ID NO: 6, SEQ ID NO: 7, SEQ ID NO: 8, SEQ ID NO: 9, SEQ ID NO: 10, SEQ ID NO: 11, SEQ ID NO: 12, SEQ ID NO: 13, SEQ ID NO: 14, SEQ ID NO: 15, SEQ ID NO: 16, SEQ ID NO: 17, SEQ ID NO: 18, SEQ ID NO: 19, SEQ ID NO: 20, SEQ ID NO: 21, SEQ ID NO: 22, 15 SEQ ID NO: 23, SEQ ID NO: 24, and SEQ ID NO: 25.

40. The method of claim 24, further comprising administering an additional anti-inflammatory, immunosuppressive, or anti-arthritis agent.

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41. The method of claim 40, wherein the agent is a biological response modifier, a disease-modifying antirheumatic drug, a steroid, a nonsteroidal anti-inflammatory drug, or a Cyclo-Oxygenase-2 inhibitor.

25 42. The method of claim 40, wherein the agent is anakinra, etanercept, infliximab, leflunomide, prednisone, cortisone, celecoxib, choline magnesium trisalicylate, diclofenac, diclofenac potassium, diclofenac XR, diflunisal, etodolac, etodolac ER, fenoprofen, flurbiprofen oral, ibuprofen, indomethacin, indomethacin SR, indomethacin suppositories, ketoprofen, ketoprofen ER, meclofenamate, 30 meloxicam, nabumetone, naproxen, naproxen CR, naproxen ER, oxaprozin, piroxicam, rofecoxib, salsalate, sulindac, or tolmetin sodium, hyaluronan, or hylan G-F20.

43. A method of treating or preventing inflammatory arthropathies in a subject comprising contacting immune cells with a therapeutically effective amount of the oligodeoxynucleotide of claim 1, and transferring the immune cells to a subject having or at risk of developing inflammatory arthropathies, thereby treating or preventing the inflammatory arthropathies.
44. The method of claim 43, wherein the immune cells are transplanted.
45. The method of claim 43, wherein the immune cells are transferred intravenously.
46. A kit for treating or preventing inflammatory arthropathies in a subject comprising a container comprising the oligodeoxynucleotide of claim 1.
47. The kit of claim 46, further comprising a container comprising an additional anti-inflammatory, immunosuppressive, or anti-arthritis agent.
48. The kit of claim 47, wherein the agent is a biological response modifier, a disease-modifying antirheumatic drug, a steroid, a nonsteroidal anti-inflammatory drug, or a Cyclo-Oxygenase-2 inhibitor.
49. The kit of claim 47, wherein the agent is anakinra, etanercept, infliximab, leflunomide, prednisone, cortisone, celecoxib, choline magnesium trisalicylate, diclofenac, diclofenac potassium, diclofenac XR, diflunisal, etodolac, etodolac ER, fenoprofen, flurbiprofen oral, ibuprofen, indomethacin, indomethacin SR, indomethacin suppositories, ketoprofen, ketoprofen ER, meclofenamate, meloxicam, nabumetone, naproxen, naproxen CR, naproxen ER, oxaprozin, piroxicam, rofecoxib, salsalate, sulindac, or tolmetin sodium, hyaluronan, or hylan G-F20.
50. The kit of claim 46, further comprising instructions for administering the oligodeoxynucleotide to a subject